Strategic Energy Investment Advisory Board Meeting
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Potential Programs
For
Maryland

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Home Performance with ENERGY STAR

Program Description

The primary objective of the Home Performance with ENERGY STAR (HPwES) Program is to motivate residential energy consumers to use a whole-house approach to reducing energy consumption when considering home improvements such as remodeling, new heating and air conditioning equipment (HVAC), replacing windows, or adding insulation. Rather than focusing on a single component, the homeowner is provided with an assessment of how a combination of improvements, such as sealing air and duct leaks, adding insulation, improving the HVAC system and upgrading lighting and appliances will result in a more comfortable home, with lower energy consumption.

Target Market

Residential customers in existing homes who are looking for ways to save money by reducing energy use or are considering upgrades and improvements to their home. HVAC, remodeling, air sealing and insulation and weatherization contractors and other program partners interested in offering comprehensive home energy performance services to their customers will also be a target of the HPwES Program.

Incentive Strategy

MEA will provide incentives to homeowners to participate in the program through rebates. Homeowners can apply for a rebate equal to 50 percent of the cost of the project up to $1,000 if the project includes insulation and/or air & duct sealing. The minimum cost of the total project must be $1,000. MEA is reviewing possible options for residential energy efficiency financing to be implemented in the future.

Program Implementation Strategy

Program implementation will be provided by a third-party vendor who will be selected through a competitive RFP process. The vendor will be responsible for recruiting, training, certifying, and mentoring contractors; processing incentives, and spot audit verification. MEA will work with the selected vendor to adapt the implementation plan for the current program and to develop measure lists, deemed savings and rebate levels.

Key elements of the Home Performance with ENERGY STAR Program implementation strategy include:

- Contractor recruitment and training: The implementation vendor will recruit HVAC, remodeling, insulation and weatherization contractors and other trade allies interested in offering comprehensive home energy performance services to their customers, and arrange for them to participate in the required training. Contractors are required to sign a participation agreement and abide by all program protocols and reporting requirements. The program will offer support of contractors in the following ways:
    - Training on program policy and procedures
    - Program sponsored technical and quality installation training
    - Program sponsored certification testing
    - Training and certification testing “scholarships” where these costs present a potential financial hardship to individual technicians and small contracting companies
    - Program sponsored business-operations and sales training

- Customer recruitment: The primary customer recruitment mechanism will be the direct marketing activities of participating contractors. However, MEA or its implementation contractor will also engage in direct marketing to customers as well.
- Home Energy Assessment: Participating contractors will provide energy assessments for interested customers for a fee. During the audit, and with the customer's approval, the contractor will install some basic energy efficiency products like CFLs and pipe insulation. The audit will estimate potential energy savings due to infiltration and heat loss through walls and attics and test appliances and equipment that use combustible fuels for safety and efficiency. In addition, the assessment will include identification of the age and size of the HVAC unit and the last service date, as well as an assessment of duct leakage and insulation. The report will be presented to the customer with recommendations for upgrades and information about available rebates.
- Implementation: If the customer elects to proceed with any of the audit recommendations that are eligible for implementation incentives through the HPwES Program or other MEA or utility programs, the home performance contractor will conduct the work or arrange for the work to be conducted with a qualified contractor.
- Project verification: MEA will site-verify a certain percentage of installations to monitor and verify energy savings.

Consumer Participation

A consumer would participate in the program when they are remodeling their home or upgrading a component of the home such as heating or air conditioning equipment, or windows. A consumer would also participate in the program because they have desire to reduce energy use and are seeking help on how to do it.

Program Partners

Contractors in the HVAC, insulation, weatherization, and home improvement industries are actively recruited to partner in this program. Participating contractors are required to sign a participation agreement, pass the certification tests and abide by all program protocols and reporting requirements.

Eligible Measures

Customer measures which are eligible to receive incentives in this program will include any measures which save energy and are cost-effective from the customer's economic perspective. The list of eligible customer measures are likely to include:

- CFL bulbs and other low-cost measures installed at the time of the audit
- Sealing of the home to reduce infiltration
- Sealing and insulation of ductwork if present in the home
- Adding additional insulation to the home were possible and cost-effective
- ENERGY STAR windows
- ENERGY STAR replacement refrigerators, clothes washers and dishwashers when identified as cost-effective in the energy audit.

In addition to the measures listed above, savings opportunities such as high efficiency HVAC equipment and lighting will be identified in the energy audit. These measures may be eligible for

incentives through other MEA or utility residential energy efficiency programs. In addition to consumer measures, the program will also offer contractor training to support installation and contractor certification.

Marketing and Communications

A Consumer Awareness Campaign will be the primary customer communications medium for the program. Program specific marketing efforts will target contractors and trade allies in the HVAC and home improvement industries. These industries will be marketed using targeted direct marketing, direct contact by the program vendor personnel, trade shows and trade association outreach. Trade ally marketing to their customers will also be an important component of the customer marketing efforts.

Measurement &Verification Strategy and Program Evaluation

Energy savings estimates for projects in this program will be available from the software programs used by the contractors to evaluate customer's homes. Field verification of measure installation will be made for a statistically significant sample of projects.

Program Benefits

- Homeowners save an average of 20 percent on their annual energy bill after participating in the HPwES program. This equates to approximately $400 in annual savings for a Maryland homeowner.
- If 2,500 jobs, or homes, are completed per year, it is equivalent to saving 8,500,000 kWh, or $1.2 million annually in Maryland.
- Homes are healthier and safer.
- Program provides workforce development opportunities for individuals and companies interested in entering the green building industry.
- The Program will develop trained and certified contractors capable of providing whole-house energy services in Maryland. HVAC, insulation, and home improvement contractors will be offered training opportunities and encouraged to become certified by organizations such as the Building Performance Institute ("BPI").

Best Practices Example: New York Home Performance with ENERGY STAR

The New York State Energy Research and Development Authority (NYSERDA) developed the first HPwES program in the nation. The program is changing the home energy improvement market by introducing a 'one-stop shopping' approach to make the process as easy as possible for homeowners. NYSERDA works with a national lending program to offer a simplified low interest loan application that can be processed on-site by the contractor. Over 100 contractor firms have received are qualified to offer the program to homeowners and 250 technicians have been certified as analysts and installers. NYSERDA estimates the program generated more than 700,000 kilowatt hours and $115,000 in electricity savings in the first two years.

Insulation Rebate

Program Description

Most Maryland homes have inadequate insulation in their attics and walls. Almost half of the energy used in a house goes to heating and cooling. Additional insulation will help consumers reduce energy bills in a significant way. The insulation rebate program will provide residential customers with a $250 rebate if they spend $500 on purchasing insulation for their home. If the customer decides to participate in the Maryland Home Performance with ENERGY STAR program, then the incentive jumps to 50 percent of the total project cost up to $1,000 if it includes insulation and air sealing.

Target Market

The target market for this program is residential customers.

Incentive Strategy

Customers will send a rebate form and a copy of their invoice or receipt clearly showing at least $500 was spent on insulation materials to MEA. MEA will then send a rebate for $500 to the customer. If the customer uses the Home Performance with ENERGY STAR program to make the improvements, then they will also have to submit a rebate form and a copy of their invoice and/or receipts for the insulation and air sealing products and services. The customer will receive 50 percent of the total project cost up to $1,000 if the job includes insulation and air sealing.

Implementation Strategy

The insulation rebate program will start in late Spring 2009. Only insulation contractors with Maryland Home Improvement Commission licenses and who have signed a participation agreement will be allowed to offer their services to a customer seeking this rebate. MEA may require the insulation contractors to attend a short training that describes the program and a brief overview of best practices when insulating a home.

At the end of a project, the customer will submit the required documentation to MEA which will then verify the information and send the customer a rebate for $250.

Program partners may include: insulation contractors, the Insulation Contractors Association of America, the North American Insulation Manufacturers Association, the National Insulation Association, the Cellulose Insulation Manufacturers Association, Polyisocyanurate Insulation Manufacturers Association, Maryland Home Performance with ENERGY STAR, the Building Performance Institute, and the U.S. DOE and EPA.

MEA will hire an EM&V contractor to evaluate, measure, and verify results of this program. The program will include a quality assurance component that ensures the insulation is both being installed and being installed correctly.

Program Benefits

- Homes will save energy. It is estimated that homes that go through the Home Performance program save an average of 20 percent on their energy bills (some can save up to 40 percent!). In Maryland, that equates to over $400 in annual savings.
- Homes will be more comfortable.
- Insulation contractors will receive training and their work will be verified by a third party.
- More insulation contractors will want to join the Home Performance program to be able to offer the larger incentives.

Assisted Home Performance with ENERGY STAR

Program Description

The Assisted Home Performance with ENERGY STAR program is a complementary program to Home Performance with ENERGY STAR program. Therefore, it operates the same way with regard to the contractor infrastructure.

The primary objective of the Assisted Home Performance with ENERGY STAR (AHPwES) Program is to motivate low-to-moderate income residential energy consumers to use a whole-house approach to reducing energy consumption when considering home improvements such as remodeling, new heating and air conditioning equipment, replacing windows, or adding insulation. Rather than focusing on a single component, the low-to-moderate income homeowner is provided with a **partially-to-wholly subsidized** assessment of how a combination of improvements, such as sealing air and duct leaks, adding insulation, improving the HVAC system and upgrading lighting and appliances will result in a more comfortable home, with lower energy consumption.

Target Market

The target market for this program are low and moderate income customers. The definitions of low and moderate income continue to be developed. According to the Department of Housing and Community Development (DHCD), 2008 Maryland State Median Income (SMI) is $81,700. Currently, MEA is considering classifying low-income as households with incomes less than 50 percent of SMI, or $40,850 and moderate income as incomes less than 80 percent of SMI, or $65,360. MEA is also investigating whether or not to base the income thresholds on family size.

Incentive Strategy

Unlike the regular HPwES program, homeowners participating in the Assisted program will receive higher levels of incentives for the energy assessment and the improvements depending on their household income. The incentives will take the form of a direct rebate for a certain percentage of the project cost. Low-income homeowners will receive the most cost-effective energy efficiency improvements at no cost.

Implementation Strategy

Low and moderate income consumers would participate if they are interested in doing renovations to their home including remodeling, updating or replacing their HVAC and/or water heating system, siding, windows, etc. Participants will be directed to the program through the Maryland Home Performance website, DHCD's website and associated programs, the Department of Human Resources' website and associated programs, and through networks of organizations serving low and moderate income populations.

Measurement &Verification Strategy and Program Evaluation

Energy savings estimates for projects in this program will be available from the software programs used by the contractors to evaluate customer's homes. Field verification of measure installation will be made for a statistically significant sample of projects.

Program Benefits

- Low-Income customers receive the most cost-effective improvements at no cost.
- Homeowners save an average of 20 percent on their annual energy bill after participating in the HPwES program. This equates to approximately $400 annually for a Maryland homeowner.
- If 2,500 jobs, or homes, are completed per year, it is equivalent to saving 8,500,000 kWh, or $1.2 million annually in Maryland.
- Homes are healthier and safer.
- Program provides workforce development opportunities for individuals and companies interested in entering the green building industry.
- The Program will develop trained and certified contractors capable of providing whole-house energy services in Maryland. HVAC, insulation, and home improvement contractors will be offered training opportunities and encouraged to become certified by organizations such as the Building Performance Institute ("BPI").

Best Practices Example: New York Assisted Home Performance with ENERGY STAR

The Assisted Home Performance with ENERGY STAR (AHPwES) program was developed by the New York State Energy Research and Development Authority (NYSERDA). It targets families earning below 80 percent of the state median income. Through the program, 10 regional contractor teams receive training and certification in building diagnostics and installation of whole-house performance improvements – the same training as required for the HPwES program. Eligible households receive a comprehensive energy assessment, financing through low-interest loans, a 50 percent NYSERDA subsidy of project costs, and installation of recommended efficiency measures.

Refrigerator / Freezer / Room Air Conditioner Recycling Program

Program Description

The Refrigerator / Freezer / Room Air Conditioner Recycling Program ("Recycling Program") is intended to motivate residential customers to turn in their old refrigerator, freezer, and/or room air conditioner to receive a reward for the appliance. The appliance will be decommissioned and recycled to have as little negative impact on the environment as possible. It is intended that both primary and secondary appliances will be accepted into the program.

Target Market

The target audience for this program is residential customers who have at least one refrigerator, freezer, or room air conditioner. Low-income customers may be offered a refrigerator replacement.

Incentive Strategy

MEA will send rebate checks to customers for the following:

- $25 for Room Air Conditioners
- $35 for Refrigerators and Freezers
- Selected low-income customers will receive a replacement ENERGY STAR refrigerator.

Implementation Strategy

Implementation of this program will likely begin with a marketing campaign in early to mid June 2009. Marketing will be followed by scheduled pick-ups of appliances *in operating condition* at the end of June. Appliances that do not function will be picked up, but no rebate will be paid for them. Marketing and scheduled pick-ups of appliances will occur year-round with certain times of the year given additional emphasis depending on the "appliance season" as determined by MEA in consultation with Maryland utilities offering incentives for new appliances.

Consumers will call a customer service number to schedule a pick-up of an old appliance. The customer service representative will provide a tracking number for each appliance the customer is turning in. The customer will write the tracking number on the physical appliance. When the contractor arrives to remove the appliance, they will test the unit to ensure operability and then make the unit inoperable by: 1) cutting the power cord, 2) breaking the seal around the door of the refrigerator and freezer, 3) destroy the cooling unit, and 4) spray paint the tracking number all over the unit. This will ensure that the unit cannot be resold on the black market. The program contractor will then take the unit to a recycling center where everything except for magnets and other small parts are reprocessed and/or recycled.

Program partners for this program include: Maryland utilities offering rebates on similar, new products; Appliance retailers and distributors; and Recycling facilities

Evaluation, measurement and verification will be accomplished based on a deemed savings approach which will be developed after a statistically significant sample of units are turned in.

This program will include a low-income component that distributes ENERGY STAR refrigerators to customers who are deemed to be low-income.

Program Benefits

- Customers can save as much as 2,000 kWh, or $250, per year by getting rid of an old refrigerator or freezer.
- It is estimated that 20 percent of Maryland homes have a second refrigerator or freezer. If 2 percent of Maryland households participate in the program, that equates to more than 40,000 old refrigerators and freezers off the grid alone. That equals savings of approximately 30,000,000 kWh, or $4.2 million in savings annually in Maryland.
- Low-income customers will save at least 800 kWh per year by receiving a new ENERGY STAR refrigerator that replaces their old refrigerator.

***Best Practices*: PGE Refrigerator Recycling**

PG&E in California has been running this program for approximately 14 years. Rebate levels are very similar to the incentives offered in this program. Evaluation studies in California have found average savings of approximately 1,000 kWh per refrigerator recycled.

Energy Efficiency for Multifamily Buildings

Program Description

The Multi-Family Building program would deliver energy efficiency improvements in both existing buildings and new construction. In buildings with a significant population of low-income customers, an energy assessment would potentially include installation of compact fluorescent light bulbs, weather stripping and basic air sealing at no cost. Significant upgrades would include building shell improvements, energy-efficient lighting and appliances, efficient space heating, ventilation, cooling, and water heating systems, and health and safety improvements. These upgrades would be partially subsidized in both new and existing buildings. New buildings would be required to meet ENERGY STAR qualifications.

Target Market

The target market for this program is multifamily building owners.

Incentive Strategy

The incentive strategy for this program is under development.

Implementation Strategy

Multifamily buildings will be dealt with as a whole so owners can approve one contract and work can be put out to bid to get improved pricing. Multifamily buildings would receive a subsidized energy assessment and many of the efficiency measures would be provided at reduced cost. Measures such as appliance and/or major equipment replacements would be offered at a discount.

Program Benefits

- Solves the problem of the spit-incentive (property owner owns/operates the property and the tenant pays the energy bills).
- No cost to low-income customers for most effective energy efficiency improvements.
- ENERGY STAR Commercial buildings use on average 35% less energy and generate one-third less carbon dioxide than typical similar buildings.
- Reduce the amount of income used for paying electricity, natural gas, and water bills.
- Builds and develops the workforce necessary to make the energy efficiency upgrades.

The program will be marketed through direct contact with interested customers and homeowners, property owners associations, bill inserts, customer newsletters, the MEA website, home shows, and direct mail.

***Best Practices*: National Grid EnergyWise Program**

National Grid developed a multifamily retrofit program in the northeast to address the split incentive problem in multifamily buildings – that is, the party who owns the property and is responsible for capital investments is not the same party (tenants) who is responsible for paying the energy costs. This program assists customers and building owners with an initial energy audit with follow-up installation of low-cost energy saving measures (CFL's, air sealing, caulking) at no charge. Energy service companies then arrive to install insulation, heating and cooling equipment as recommended by the energy audit. State funds are provided to buy down the cost of energy efficiency measures. In 2006, 18,000 households were served by this program and cost approximately $10 million. Since 1996, the program has delivered more than 149,000 cumulative annual MWh savings and 2,222,000 MWh in lifetime savings for more than 185,000 customers.

Specialized Industrial Energy Assessments

Program Description

The initial phase of this project will provide energy assessments to Maryland water and wastewater treatment plants to assist these facilities in reducing their overall energy consumption. This program will also be extended to any industrial facility located in a utility service area where energy audits are not being offered as part of the utility's Empower Maryland program offerings for industrial customers.

Target Market

The industrial sector in Maryland accounts for 29% of electricity consumption. The Environmental Protection Agency (EPA) estimates that approximately 3% of national energy consumption comes from water and wastewater treatment facilities and the associated water and wastewater delivery. For this reason, the Maryland Energy Administration (MEA) will be targeting this program to large public water and wastewater treatment plants. For the purposes of the Strategic Energy Investment Fund, large facilities will be defined as treatment plants that have a design capacity of at least three million gallons a day (MGD). Currently there are twenty-one wastewater treatment plants within the State of Maryland that would qualify for these energy assessments.

This program will be also be providing energy audits to industrial facilities in areas where audits are not being conducted by the local utility through EmPOWER Maryland.

Incentive Strategy

The program will provide cost-shared energy assessments for large public water and wastewater facilities located in the State of Maryland. The main focus of the energy assessment will be to identify and quantify projects that can reduce the overall energy consumption of a treatment plant. Since many wastewater treatment facilities produce biogas as a by-product, energy recovery from biogas will be examined as part of the assessment.

For industrial facilities that do not have access to energy assessments through the local utility's EmPower Maryland programs, MEA will pay a portion of the audit costs up to a defined maximum MEA contribution.

Implementation Strategy

Program implementation will be provided through a third party vendor selected through the State's competitive bidding process. The implementation vendor will be responsible for recruiting interested facilities, selecting energy assessment contractors, ensuring assessment quality, and reporting assessment results to the customer and MEA. The implementation vendor will also be responsible for following up with each customer six months and one year after audit completion to find out the number of assessment recommendations that were actually implemented as well as the actual energy savings realized as a result of the assessment.

This program will be formally evaluated during the second year of implementation to confirm program impact and to make recommendations to improve the program, as necessary.
MEA will leverage the Maryland Department of the Environment (MDE) and the Maryland Environmental Service (MES) to help make contact with the water and wastewater facilities within the State.

Due to the amount of time that will be required to procure an implementation vendor, this program is slated to begin in FY 2010.

Marketing/Awareness

The program implementation vendor will be responsible for marketing this program to the public water and wastewater treatment facilities in the State. Due to the limited number of public water and wastewater facilities within the State, the implementation vendor is expected to work through each local jurisdiction to directly contact each treatment facility to inform them on the opportunities presented through this program.

MEA will work with the local electric utilities to identify whether any industrial customers are ineligible for their energy assessment programs. Once these customers are identified, MEA will leverage the local utility account managers to communicate the energy assessment program available through MEA.

***Best Practices Example*: NYSERDA Municipal Water and Wastewater Treatment Program**

This program is modeled after the Municipal Water and Wastewater Treatment program created by the New York State Energy Research and Development Authority (NYSERDA). The NYSERDA program offers energy assessments, prescriptive incentives, and demonstration project financial support to municipal water and wastewater treatment plants. To make the audits cost effective, NYSERDA has focused their assessment efforts on treatment plants with a minimum flow of 3 MGD. NYSERDA has been able to facilitate energy efficiency improvements at treatment plants with flows below 3 MGD by educating key members of the local water boards on energy efficiency.

At the North Tonawanda Wastewater Treatment plant in Niagara County, an energy assessment completed through the NYSERDA FlexTech program identified $89,880 in annual energy savings. The total cost of the energy study was $45,600 with $22,800 contributed by NYSERDA. Ultimately, the North Tonawanda Wastewater Treatment plant implemented 63% of the recommended energy measures resulting in a realized annual savings of $57,000. To achieve this result, the city of North Tonawanda contributed $230,000 and NYSERDA contributed another $61,000 in incentives.

Green Collar Workforce Training

Program Description

MEA will provide training to a wide range of people offering services in the green building industry. The primary goal of these trainings is to educate workforce members about the importance of energy efficiency and renewable energy and how to properly sell, install, operate, and value these products and services. The secondary goal of the trainings is to encourage people just entering the workforce or people seeking a career change to choose the green building industry to in which work.

Target Market

The target market for this program will be members of any industry that can impact energy efficiency in homes, businesses, and transportation. These industries include but are not limited to: builders, realtors, mortgage lenders, retailers, building operators, contractors, code inspectors, energy auditors, school teachers and administrators.

Incentive Strategy

The incentive for this program is to provide free or subsidized training seminars to members of different industries.

Implementation Strategy

The program could start almost immediately. This is because MEA could contract with several vendors using small procurements which take far less time than a large procurement with a complete RFP process.

Program partners would be stakeholders from the aforementioned target markets. This will result in: 1) better trainings, 2) more publicity for the trainings, 3) possible low- or no-cost venues for the trainings, and 4) continuing education credits for participants in the trainings.

MEA would hire an outside contractor to conduct evaluation, measurement and verification for the various trainings. Possible measures of success include: 1) number of people trained, 2) expected energy savings resulting from each trained individual, and 3) expected number of people reached by each trained individual.

A potential low-income component of this program would be to target low-income communities to participate in the trainings and to offer the trainings at no charge. The trainings could serve as a type of workforce development making attendees more competitive in the market including people for whom English is a second language.

Program Benefits

- Participants will be more able to compete in the workforce for jobs in the green building industry.
- Expands workforce capable of doing work to reach the EmPOWER Maryland goals. Without a trained workforce, EmPOWER Maryland will not succeed.

- By educating more people about energy efficiency and renewable energy, greater economic value is assigned to buildings that are more energy-efficient and that take advantage of clean energy.
- MEA could fulfill the need for more training on energy efficiency and green building skills, which are not widely available.
- Provides potential funding to small businesses to implement training programs through the competitive procurement process.

State Agency Loan Program

Program Description
The State Agency Loan Program (SALP) is a revolving loan program administered by the Maryland Energy Administration. SALP provides loans for energy efficiency improvements in State owned facilities. SALP loan repayments are made from the borrowing agency's fuel and utility budget using the energy costs avoided through the implementation of the project.

Target Market
The SALP program is for State agencies implementing projects to reduce energy consumption.

Incentive Strategy
State agencies pay zero percent interest on the loan and a one percent administration fee.

Implementation Strategy
MEA will continue to administer the SALP program moving forward. Additional funding for SALP through the Strategic Energy Investment Fund would enable Maryland to initiate additional projects to reduce state energy consumption during fiscal year 2009.

To ensure that the SALP program remains cost effective, the energy efficiency loans made through SALP must meet the following repayment requirements:

- Repayment period of 10 years or less
- The loan repayment schedule will be set up so the annual loan payment is equal to the total amount of the loan divided by the life of the loan

The SALP program effectiveness will continue to be evaluated annually as part of the capital budget review process.

Program Benefits
- Readily available source of funding to help State Agencies meet the energy consumption reductions outlined in the State Building Energy Efficiency and Conservation Act
- Reduces the energy costs to operate State buildings
- Lower emission of greenhouse gases and other pollutants by State facilities

Marketing/Awareness
SALP will be advertised to each State Agency through the network of State Agency energy coordinators. SALP information will also continue to be advertised on the MEA website.

Best Practices Example: Maryland State Agency Loan Program

Since the SALP program was launched in 1991, the revolving loan program has provided over $16.5 million in loans to State Agencies for 61 energy related projects. Cumulatively, the SALP-funded energy projects have saved the State over $20.1 million in energy costs.

Community Energy Efficiency & Renewable Energy Grants

Program Description

Local governments serve their residents most closely, and best understand the needs specific to a geographic location. These grants would allow local governments and nonprofits to identify specific needs and receive financial assistance to implement the plans and programs. Both energy efficiency and renewable energy projects are eligible.

Target Market

These grants are targeted towards local governments and non-profits.

Incentive Strategy

The incentive strategy and structure varies depending on the proposed plan of action. Incentives are structured to support projects that:

- Improve energy efficiency
- Implement energy conservation plans
- Support renewable energy projects that reduce greenhouse gas emissions

Implementation Strategy

The Maryland Energy Administration (MEA) will administer competitive grants based on the availability of funds to local governments and non-profits. Projects will be selected based upon energy and demand savings, while ensuring geographic diversity. Marketing of the program will occur through the same avenues as the existing Jane Lawton loan program: the Maryland Association of Counties; the Maryland Municipal League; and the Maryland Association of Non-Profit Organizations.

Program Benefits

This program will provide a valuable additional tool to promote affordable, reliable, and clean energy in Maryland. While many projects are suitable for loans, due to their significant energy savings as a source for repayments, some projects, such as renewable energy feasibility studies or non-profits doing energy efficiency projects in low-income neighborhoods, do not. The ability to offer grants, as well as loans, will ensure that a wide variety of projects are able to be implemented.

The Jane E. Lawton Conservation Loan Program

Target Market

This program is targeted towards Local Governments, Non-profits, and Businesses.

Program Description

The Jane E. Lawton Conservation Loan Program, named for the late Delegate Lawton who was known for her dedication to the natural environment and energy efficiency, provides below market revolving loan packages to encourage the investment by businesses, local governments, and non-profit organizations in energy efficiency and renewable energy. The Jane E. Lawton Conservation Loan Program combined the Community Energy Loan Program and the Energy Efficiency and Economic Development Loan Program into one entity. MEA is in the process of developing regulations to establish financial security requirements, depending on the type of loanee. This program can also leverage funds available from private markets.

Incentive Strategy

Financing continues to be a major barrier to implementation of energy efficiency and renewable energy projects. Local governments, non-profits, and businesses are extremely busy in pursuit of the core goals. And rising energy costs are eating into their strained budgets. Low-interest loans for these projects can be the assistance that allows these projects to move forward.

Implementation Strategy

The Community Energy Loan Program (CELP) has existed since 1989 and has provided 58 loans to local governments and non-profits for over $16 million, with annual savings of almost $4 million for the organizations. Combining it with the Energy Efficiency and Economic Development Loan Program to form the Jane Lawton Loan Program allows this current program to continue to function quickly and efficiently. Local governments and non-profits know about the program through outreach and through energy services providers. Monitoring and verification can be done through the energy services providers or through regular reporting of energy use by the loan recipients.

Program Benefits

- Readily available source of access to below market rate loans for energy related projects
- Financial assistance through loans will provide faster returns on investment
- Lower energy costs due to the installation of efficiency and renewable measures
- Lower emission of greenhouse gases and other pollutants
- Encourages the development of innovative energy technologies
- Provides for local job creation
- Improves State and national energy security

***Best Practices Example*: Maryland Community Energy Loan Program**

The CELP program, which was rolled into the Jane E. Lawton Conservation Loan Program on July 1, 2008, was originally launched in 1989 and has provided over $16 million in loans to 58 organizations. These have included schools, hospitals, local governments, museums, YMCAs, and a variety of other non-profits. These organizations have saved over $4 million annually and $20 million cumulatively, funds that they have used to implement their core mission, rather than on energy costs. The program included:

- Up to 8 Years to Repay
- No Penalty for Prepayment
- No Security Required
- Deferred Repayment for one year to allow for Completion of Project
- Can be used as Financing for an Energy Performance Contract
- Below market rates, nominal application and closing fees

School Grants for Energy Efficiency and Conservation

Program Description

The school grant program will provide funding for schools to execute projects that reduce energy usage. The grant program will allow schools to model sustainable technologies for their students and staff. Examples of potential projects include the following:

- Upgrade classroom lighting to high efficient fluorescent fixtures
- Replace an inefficient appliance in the school cafeteria with an ENERGY STAR commercial appliance
- Improve the school building envelope by upgrading to more energy efficient windows
- Launch a energy efficiency education program designed to reduce school energy consumption through behavioral changes

Target Market

This program is directed toward schools within Maryland's twenty-four public schools systems.

Incentive Strategy

Energy costs are the second largest operating expense for schools. By implementing energy efficiency measures and executing projects that reduce energy costs, funds that were previously allocated to paying energy bills can now be redeployed for other uses in the school.

Through this program, a grant will be made available to every public school system in the State for use in energy reduction projects. Grant size will be determined based on the number of students in each school system.

Implementation Strategy

The Maryland Energy Administration (MEA) will administer the school grant program starting in fiscal year 2009.

Grant Application

Each school system will be required to submit a one page overview to MEA for each project that they wish to have funded through the school grant program. The overview will consist of a brief description, project costs, and an estimation of the annual energy savings associated with the project.

It will be left to the discretion of the school system to decide how the grant should be distributed to best reduce school system electricity usage. The grant may be used to pay for facility upgrades and/or to purchase energy efficient equipment used within the school building(s).

Grant Notification

After reviewing grant applications, MEA will notify the school systems of the status of each grant application.

Grant Award
Once the project has been completed, project expense documentation must be submitted to MEA. Upon review of the project expense documentation, MEA will release the grant funds to the school system.

Measurement & Verification Strategy and Program Evaluation
Energy savings estimates for projects funded through the school grant program will be based on engineering calculated savings.

The program will be reviewed at the end of each program year to confirm program effectiveness and to identify opportunities for improvement in upcoming years.

Marketing and Awareness

MEA will communicate the school energy grant program to the facility maintenance and energy management staff in each of the twenty-four public school systems in the State. MEA will also leverage existing programs at the Maryland State Department of Education (MSDE) and the Maryland Association for Environmental and Outdoor Education (MAEOE) to disseminate information about the school grant program throughout the State. The Maryland State Department of Education (MSDE) is in the process of launching a pilot program to educate school facility managers, teachers, administrators, and students in energy conservation and efficiency strategies. As part of MAEOE's Green Schools program, Maryland schools have the opportunity to participate in energy conservation activities. Both of these programs will serve as an incubator of potential projects for the school grant program.

Best Practices Example: Illinois Clean Energy Foundation K-12 School Lighting Grants

The Illinois Clean Energy Community Foundation has been awarding grants to K-12 schools for lighting upgrades since 2001. Since the inception of the program, $39.0M in grants has been distributed to upgrade the lighting in 2043 school buildings across the state. Since 2001, the grant program has reduced energy consumption in schools across the State of Illinois by 69,940 kW. Through the lighting grant program, it is estimated that K-12 schools in Illinois were able to save about $8.1 million in 2007, the final year of the grant program.

Solar, Wind and Geothermal with Grants

Program Description

The solar, wind and geothermal grants program provides financial incentives for the installation of small renewable energy systems. Renewable energy systems like solar panels can be located directly on the building or site where the electricity is used – reducing the need to get electricity from the grid. These systems provide some measure of price stability, alleviate congestion on the grid, and are a reliable source of pollution free energy.

Target Market

This program is directed toward all Marylanders who have the ability to install a small renewable energy system. We expect homeowners, businesses, local governments, non-profits, farmers and rural landowners to benefit.

Incentive Strategy

MEA will use the funds to supplement the existing grant programs, whose funding does not meet demand.

- For solar, the maximum grant amount is $10,000 with the average grant amount at roughly $6,500. The grant amount is $2,500 per kw for up to 4 kw.
- For wind, the maximum grant amount is $10,000 for a four kilowatt system.
- For geothermal, the maximum grant amount is $3,000.

Implementation Strategy

The Maryland Energy Administration (MEA) will administer grants in the current fiscal year. The funds will be used to serve the people currently on the waiting list, and new applicants.

Marketing and Awareness

Demand for grants is high and the contractors that install these systems market the grant program heavily. MEA's website has been and continually is updated to reflect the most current information regarding the grants.

Best Practices Example: Delaware Green Energy Fund

Delaware provides up to a 50 percent rebate for the installation for solar, wind and geothermal energy through its Green Energy Fund. The Green Energy Fund is paid for by a surcharge on utility bills and is administered by the Delaware Energy Office.

Best Practices Example: Connecticut Clean Energy Fund

Connecticut, through the Connecticut Clean Energy Fund provides rebates for solar. The residential rebate is $5,000 per kilowatt for up to five kilowatts, and $4,300 per kilowatt for the next five kilowatts. The rebate for non-profit and government organizations is $5,000 per kilowatt for up to 10 kilowatts.

Renewable Energy Credit Aggregation

Program Description

Small renewable energy systems like solar, have great value not only for their energy production, but also because they are distributed generation systems that reduce strain on our electricity distribution grid. These systems have large up-front capital costs that put them beyond the reach of many households.

However, not only does a solar photovoltaic system generate electricity, but it also generates renewable energy certificates (REC) which have a monetary value. This program would give customers an up-front payment for the future value of the RECs, allowing the customer to reduce the initial expenditure for the system.

Target Market

This program is directed toward all Marylanders who have the ability to install a small renewable energy system. We expect homeowners, businesses, local governments, non-profits, farmers and rural landowners to benefit.

Incentive Strategy

MEA will offer to purchase 15 years of RECs from the entity that install a small, solar photovoltaic system. MEA would purchase the RECs at a price which is a percentage of the alternative compliance payment for that year. MEA would then retain the rights to RECs generated from that system for the next 15 years.

MEA will then sell the RECs to entities that need them to comply with the Renewable Portfolio Standard.

Implementation Strategy

The Maryland Energy Administration (MEA) will set aside money to purchase the RECs. Money for REC purchases in future years will partly come from the sale of RECS for compliance. MEA will have to identify a mechanism to sell the RECs into the compliance market.

Similar Program

No other state currently has this type of program though New Jersey has a related program that work towards creating a value for RECs. New Jersey, through the Board of Public Utilities has set the alternative compliance payment (ACP) at level that will increase the value of the solar REC. For 2008-2009, the ACP is $711 per megawatt hour declining to $594 in 2015-2016. By contract, the ACP in Maryland is $450 in 2008, declining to $50 in 2023. The high ACP price drives the value of the REC with solar REC values usually at about 80 percent of the ACP.

Renewable Energy Loans and Leases

Program Description

This program provides loans or leases to individuals who want to install solar, wind or another renewable energy project on their home or business. The loans would be paid in part by the savings from electricity not purchased from the local utility. Given the large initial capital it requires to buy and install a solar panel system, this would give customers access to low-cost financing and other options to address high initial costs.

Target Market

This program is targeted towards residential and small-to-medium sized businesses.

Customer Benefits

Customers can reduce the amount of electricity purchased from the local utility through on-site generation. On-site generation through solar or another technology allows the customer to have some future certainty regarding the price of electricity. The table below estimates the electricity a renewable energy system could generate:

Technology Type	Average Savings
Solar, 2.5 kW	250 kWh monthly, $30 monthly
Wind Turbine, 1.8 kW	300 kWh monthly, $36 monthly

Normally, a customer would have to pay for the systems up-front, which for a 2.5 kW solar panel array would cost roughly $15,000 (after the MEA solar grant). This program would allow the customer to finance the renewable energy system over a period of time.

The lease option enables a customer to put no money down, and have a 15 year fixed price for electricity, with an option to purchase the system at the end of the lease.

Best Practices Example: Connecticut Clean Energy Fund

The CT Clean Energy Fund recently announced a CT solar lease program to provide low and moderate income CT homeowners with a leasing alternative to purchasing solar PV systems. It is designed to cover the after-rebate cost of a solar system through the average savings of customer's electricity costs realized from the solar generation. A new CT Solar Leasing LLC was established to own the PV systems, and homeowners make no down payment and benefit from fixed energy costs for the entire 15 year lease period – with an option to buy after the lease term.

Alternative Fuel & Efficient Vehicle Infrastructure

Program Description

The transportation sector is responsible for 32 percent of Maryland's greenhouse gas emissions according to the Maryland Climate Change Commission. Reducing emissions from this sector is critical to achieving reduction in greenhouse gas emissions. Existing and technologies available in the near term will allow us to meet our transportation needs with fewer carbon dioxide emissions, and with reduced reliance on petroleum imports.

This program will provide competitively awarded grants to support advanced transportation technologies and alternative fuels. Today, alternative fuels such as biodiesel, ethanol and compressed natural gas are available on a limited basis. Transportation grants will improve the availability of these fuels and technologies in the marketplace. These grants will also support plug-in hybrid vehicles and electric vehicles that are on the horizon.

Target Market

This program is targeted towards local governments, fuel providers, service station owners and other entities.

Incentive Strategy

MEA will market the program to local governments and non-profits. Priority will be given to projects that:

- Increase alternative fuel infrastructure.
- Maximize the reduction of petroleum through the use of alternative fuels or advanced technologies.
- Support alternative fuel projects that reduce greenhouse gas emissions.

Implementation Strategy

The Maryland Energy Administration (MEA) will administer grants in the current fiscal year. Entities will apply for funds. Based on the availability of funds, MEA will award grants to applicants.

Benefits

- Reduces petroleum consumption and greenhouse gas emissions
- Increases energy security and economic activity including job creation

  Examples:

  According to Argonne National Laboratory, on a life-cycle analysis basis, corn-based ethanol production and use reduces greenhouse gas emissions by up to 52% compared to gasoline production and use. Cellulosic ethanol use could reduce GHGs by as much as 86%.

  A blend of 20% biodiesel has been shown to reduce particulate matter emissions 10%, CO 11%, and unburned hydro-carbons 21%.

  The U.S. Environmental Protection Agency has called the natural gas Honda Civic GX the cleanest internal-combustion vehicle on Earth.

If your home electricity rate is $0.13 per kWh, it would cost $0.03 cents per mile for AC operation. You would pay $0.12 per mile for gasoline in a vehicle that gets 25 miles per gallon when gasoline sells for $3 per gallon.

***Best Practices Example*: NYSERDA Bio-Fuel Station Initiative**

NYSERDA provides financial assistance and technical information to encourage fleets to purchase alternative-fuel vehicles (AFVs) and install fueling facilities or charging stations. Vehicles powered by natural gas, propane, and electricity, including certain hybrid-electric vehicles, are eligible under most of the programs NYSERDA offers. Incentives are available to encourage the use of bio-fuels such as ethanol and biodiesel. NYSERDA also has programs to encourage the use of emission reduction technologies and anti-idling technologies for diesel vehicles. Below are two examples of NYSERDA transportation programs.

NYSERDA runs **The Bio-Fuel Station Initiative: Driving Energy Independence for the Empire State.** The objective of this program is to increase the number of retail E85 and Blended Biodiesel service stations in New York State through a comprehensive approach. This program solicits applications for funds to purchase and install equipment to store and dispense E85 Ethanol and Blended Biodiesel (Biofuels). It is estimated approximately 300 new retail E85 Ethanol and/or Blended Biodiesel fueling stations will be opened as a result of this initiative. The Bio-Fuel Station Initiative provides a reimbursement of 50 percent of the costs, up to $50,000 per site, for new installations of Biofuels dispensing equipment, storage tanks, and associated piping equipment.

NYSERDA also runs a program that supports the development, demonstration, and commercialization of advanced transportation products, systems and services. The program objectives are to provide energy, environmental and economic benefits in New York State as follows:

- **Energy benefits** are sought in the form of reduced dependence on petroleum, such as may be achieved by use of alternative fuels, increased efficiency of vehicles and transportation systems, or intermodal shifts in user demand.

- **Environmental benefits** are sought in the form of reduced air pollution, especially if the product or system assists New York State in complying with federal clean air laws, and reductions in other forms of transportation-related pollution, including greenhouse gases.

- **Economic benefits** are sought in the form of creation or retention of jobs in New York State, with emphasis on employment in manufacturing and technical services. Benefits also are sought in the form of reduced life-cycle costs of transportation vehicles and systems.

Examples of the technologies covered under this program include; advanced vehicles and components, energy management and storage systems, alternative fuels and fueling systems, rail and transit, intelligent transportation systems, infrastructure, heavy-duty and commercial vehicles and electrified transportation.

Public Outreach Campaign

Program Description

A Public Outreach campaign is essential to the success of the proposed energy efficiency and renewable energy programs. The purpose of the campaign is to educate all Marylanders about opportunities to reduce their electricity bills through energy efficiency, and the opportunity to contribute clean power through a household renewable energy system. Educated consumers make informed choices about the programs that will meet their energy needs, reduce their energy costs and help the environment are necessary to meet the program energy goals. MEA will seek to coordinate its awareness campaigns with other entities in Maryland (e.g. electric utilities) to maximize the effectiveness of the campaign.

Target Market

This program is targeted towards all Marylanders.

Implementation Strategy

The proposed outreach campaign represents a strategy that relies on public relations and media messaging to create awareness of the programs. The messaging will be supplemented with paid advertising, printed materials, which direct consumers to MEA's web site and community outreach activities that, when combined, help the consumer make an educated choice on how to cut their energy consumption. As the campaign develops over time, the media mix may evolve with emphasis on different elements based on results. A flexible campaign offers the most appropriate method of managing awareness, and allows the campaign to evolve as consumer acceptance grows and as new programs are developed.

Sample Outreach Campaign: Home Makeover Contest

The Maryland Home Performance with ENERGY STAR (HPwES) Program will sponsor a Home Energy Makeover contest. This contest will enhance awareness of the HPwES by offering a complete energy retrofit of a home worth up to $25,000. By winning the contest, the homeowner's house may be eligible for energy efficiency upgrades such as: air & duct sealing, upgraded insulation, HVAC and water heater repair or replacement, energy-efficient lighting and appliances, and other products and services. The Maryland HPwES Program will partner with area businesses to offer these products and services. A complete marketing campaign including print, radio, and TV ads will spread the word about the contest and the Maryland Home Performance with ENERGY STAR Program.

Sample Outreach Campaign: Energy Efficiency Tools for Libraries

This program will make energy efficiency tools available for loan through Maryland public library systems. Education is a significant component of the effort to reduce energy consumption. By enabling Marylanders to better understand how they consume energy, MEA believes consumers will strive to reduce energy consumption.

Examples of energy efficiency tools that may be available for lending include the following:

- Kill-A-Watt electricity load meters
- Infrared thermometers

Program Benefits

- Help consumers through energy saving tips reduce their monthly electricity bills through little to no cost measures.
- Assist Marylanders in understanding of the benefits of these programs to the environment.
- Provide clear, easily understood information so that Marylanders can make informed choices.